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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of:		)
		)
M. ANTHONY STONE, ET AL.		)
		) Examiner: C. Goodman
on	HONEYCOMB REMOVAL	)
		) Art Unit: 3204
Serial No.:	08/327,744	)
		)
Filed:	October 24, 1994	) (Our Docket No. 3309P-0065)

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APPELLANTS' REPLY BRIEF

Argument

I. The Examiner erred in seeking to characterize the Appellant's Response as an admission.

Repeatedly in this and in earlier Papers filed in the long pendency of this case before the Office, the Examiner wrongfully construes various positions of the Appellant's on the teachings of the references as some sort of admission. See pages 7 *et. seq.* of the Examiner's Answer as the latest example. The Examiner was incorrect before and is so again. The Appellant's positions on the teachings of the applied references, their combinability and applicability have been put forth in earlier Papers filed in this case. Appellant reasserts the same for this Appeal.

Specifically with regard to the prior rejection of the presently pending claims previously deemed by the Board to be insufficient, the Examiner has characterized the Appellant's Brief as to be an admission that this defective combination of references is now less so. This is incorrect. Appellant concurred with the Board's earlier decision to the extent that the references, neither alone or in combination, render the claimed invention obvious. Appellant has fully addressed the new combination of references, which form the Examiner's current rejection, which is the previous combination augmented by Carr. The Examiner added Carr in an attempt to show a suggestion in the prior art for that feature of the claimed invention the Board deemed lacking. See Paper No. 42 at page 2-3 paragraph 4 and Paper No. 40, page 3, Paragraph 5. As noted in Appellant's Appeal Brief, Carr fails to do so.

Similarly, the Examiner is mistaken in characterizing Appellant's position on the applicability of McComas et al, Sheimbob, Ryan and Ackerman to the present invention. All of these references are directed towards the manufacture and repair of jet engine turbine blades. They are applicable, and Appellant has never taken the opposite position. It is *only* the newly added Carr reference whose teachings are clearly directed well outside the exotic technology of jet engine turbine blades.

Appellant has asserted that Carr is drawn from a Non-analogous Art and is therefore improperly combined with the prior art of record in formulating the Examiner's rejection of the presently pending claims which is the subject of this Appeal. Moreover, Carr lacks any reference to the step deemed lacking in the Examiner's combination of references that the Board has previously determined inadequate. In sum, Carr discloses a method for blast cleaning paint and other coatings from composite surfaces which themselves are formed from a reinforced matrix material. A special soft media is provided in an air stream at very low pressures to prevent damage to the soft composite material itself.

In relying on Carr to provide the missing teaching to formulate his rejection, the Examiner demonstrates a fundamental misunderstanding and appreciation of the technology at issue in this case. The remarks regarding the equivalence and applicability of techniques used for "driveway cleaning" reinforce this view. The technology associated with jet engine turbine blades is some of the most sophisticated anywhere. Jet engines provide enormous amounts of power and thrust using turbine blades that operate in an environment of extraordinary temperatures and pressures whose magnitudes are barely comprehensible by the lay person. A review of the technical specification of the present application and the inventor Declaration of Clifford Mitchell[1] illustrates several important facts. First, that very small and subtle changes in process and material can be rightly considered to be substantial improvements in the art. Note, in the Declaration of Clifford Mitchell that a person with 12 years experience in ultra high pressure water application engineering and 20 years experience in gas turbine engine refurbishment, labored for *2 years* finding only a limited capability of ultra high pressure water to remove metal honeycomb and braze before arriving at the present invention.[2]

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[1] Exhibit E attached to the main Brief in the previous appeal in this case and which is attached hereto as Exhibit A for the convenience of the Board.

[2] Removal rates were unacceptably low, 0.005" per second at 55,000 psi. Honeycomb in wicked areas and braze were not removed at all; Mitchell, paragraph 4.

It is simply not tenable to allege that inventors so skilled in such a highly technical area as those of the present invention would look to paint removal schemes, such as found in Carr for guidance. Paint removal is a vastly different technical problem, the values of the paint removal system parameters (such as low air pressure), and the use of media (soft plastic beads) have no bearing whatsoever on the problems found in refurbishing jet engine turbine blades. Similarly, the assertion now raised by the Examiner at page 12 of the Examiner's Answer, that "driveway" cleaning using water from a common garden hose is somehow even relevant to the patentability of the claims now on Appeal demonstrates a complete lack of appreciation of the technology at issue.

II. <u>There is no suggestion in Carr of "striking the substrate at the base of the honeycomb."</u>

The Examiner's argument at page 14 of the Answer that it is "...irrelevant whether Carr includes a specific or explicit reference to directing the stream to the substrate at the base of the honeycomb..." is clearly erroneous. At Column 4, line 55-67 of Carr, the text addresses the situation of two adherent layers of paint in great detail. Completely lacking from that discussion is any mention whatsoever of the base - paint interface or any equivalent structure. Again, reference to Figure 2 of Carr, shows the media flow to be directed across a substantial area which encompasses both layers of paint on the surface and a portion of the cleaned surface. No notice is made whatsoever of the criticality of striking the substrate at the "base of the honeycomb", and none can be inferred *without* impermissibly relying on the teachings of present invention.

The complete lack of suggestion of the present invention in Carr is not surprising, given the completely different technical problems to be solved by Carr as compared to that solved by the present invention. Carr has no relevance to the technology of the present invention (refurbishment of gas turbine engine blades) and can provide no guidance whatsoever to a skilled artisan either taken alone or in combination with the other references of record.

Conclusion

In view of the foregoing, the Appellants reiterate their request that the Board reverse the Examiner's rejection of Claim 1. Since Claims 2 - 8 depend on Claim 1, and include all the limitations of this Claim, Claims 2 - 8 are patentable over the combination of art of record for at least the same reasons to discussed above in connection with Claim 1. Accordingly, Appellants also request that the Board reverse the Examiner's rejections of dependent Claims 2 - 8 over the outstanding rejections.

Appellants believe no additional fee is due. However, if this is not the case, please charge any deficiency in fee associated with this Appeal to our Deposit Account No. 13-0235.

Appellants' Appeal Brief is being filed in triplicate.

Favorable consideration is respectfully requested.

Respectfully submitted,

By _____
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IN THE UNITED STATES PATENT AND TRADEMARK OFFICE

In the Application of	)	
	)	Examiner: C. Goodman
M. ANTHONY STONE, et. al	)	
	)	Group Art Unit: 3724
for: HONEYCOMB REMOVAL	)	
	)	
Serial No.: 08/327,744	)	
	)	(Our Docket No.: 3309P-65)
Filed: Oct. 24, 1994	)	

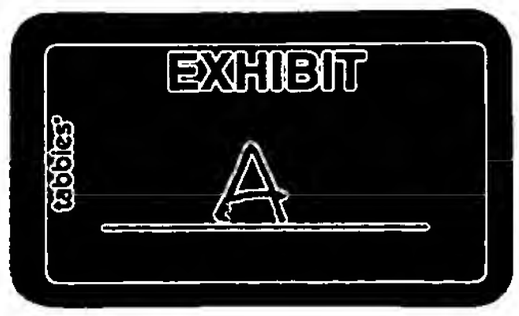
DECLARATION OF CLIFFORD V. MITCHELL

37 CFR 1.132

I, Clifford V. Mitchell, one of the named inventors on the above cited patent application, hereby state the following:

1. I am employed at Pratt & Whitney Advanced Systems Technologies, Inc., (AST) Huntsville, Alabama. I have been employed by AST (formerly Waterjet Systems, Inc. and USBI) for approx. 12 years. My present position is Manager, Huntsville Service Center & Process Engineering. I have 12 years experience in ultra-high pressure water application engineering and 20 years experience in Gas Turbine Engine refurbishment.

2. Honeycomb is a formed metal structure braze bonded to a metal substrate. Plasma/sintered coatings are sprayed powders layered to a metal substrate. The honeycomb material and braze described in the present application has a much higher erosion characteristic than the plasma sprayed and sintered coatings described in U.S.



patent no. 5,167,721 to McComas. Therefore, the methods typically employed to remove sprayed and sintered coatings such as plasma, rubber, fibermetal and epoxy materials from base materials such as nickel, steel, titanium, and aluminum are not generally applicable to honeycomb removal.

3. Prior to the introduction of high pressure liquid processes, sprayed and sintered coatings were typically removed either by a chemical strip or grit blasting; honeycomb was typically removed by grinding and/or a chisel.

4. Two years of initial work on the present invention demonstrated only a limited capability of ultra-high pressure water to remove honeycomb. Removal rates were unacceptably low (.005 ips at 55,000 psi) and honeycomb in wicked areas and the braze were not removed at all.

5. Only after extensive further experimentation with the present method were increased removal rates for honeycomb and braze demonstrated.

6. Engine overhaul and repair customers have expressed a long felt need for a honeycomb removal process that does not damage the substrate. Present machining techniques to remove honeycomb result in an unacceptably high scrap rate.

I declare that all statements herein made of my own knowledge are true and that all statements made on information and belief are believed to be true. I understand that willful false statements and the like are punishable by fine or imprisonment, or both (18 USC 1001) and may jeopardize the validity of the application or any patent issuing thereon.

11/1/00

Clifford V. Mitchell